Desertification is the process which turns productive into non- productive desert as a result of poor land-management. The desert moved 100 km southwards between 1950 and 1975.

**WHAT CAUSES DESERTIFICATION?**  
\* Overgrazing is the major cause of desertification worldwide. Plants of semi-arid areas are adapted to being eaten by sparsely scattered, large, grazing mammals which move in response to the patchy rainfall common to these regions.

The use of boreholes and windmills also allows livestock to stay all-year round in areas formerly grazed only during the rains when seasonal pans held water. Where not correctly planned and managed, provision of drinking water has contributed to the massive advance of deserts in recent years as animals gather around waterholes and overgraze the area.

\* Cultivation of marginal lands, i.e lands on which there is a high risk of crop failure and a very low economic return, for example, some parts of South Africa where maize is grown.

\* Destruction of vegetation in arid regions, often for fuelwood.

\* Poor grazing management after accidental burning of semi-arid vegetation.

\* Incorrect irrigation practices in arid areas can cause salinization, (the build up of salts in the soil) which can prevent plant growth.

When the practices described above coincide with drought, the rate of desertification increases dramatically.

Increasing human population and poverty contribute to desertification as poor people may be forced to overuse their environment in the short term, without the ability to plan for the long term effects of their actions. Where livestock has a social importance beyond food, people might be reluctant to reduce their stock numbers.

**WHAT ARE THE EFFECTS OF DESERTIFICATION?**  
Desertification reduces the ability of land to support life, affecting wild species, domestic animals, agricultural crops and people. The reduction in plant cover that accompanies desertification leads to accelerated soil erosion by wind and water. South Africa losing approximately 300-400 million tonnes of topsoil every year. As vegetation cover and soil layer are reduced, rain drop impact and run-off increases.

Water is lost off the land instead of soaking into the soil to provide moisture for plants. Even long-lived plants that would normally survive droughts die. A reduction in plant cover also results in a reduction in the quantity of humus and plant nutrients in the soil, and plant production drops further. As protective plant cover disappears, floods become more frequent and more severe. Desertification is self-reinforcing, i.e. once the process has started, conditions are set for continual deterioration.

**HOW WIDESPREAD IS DESERTIFICATION?**  
About one third of the world's land surface is arid or semi-arid. It is predicted that global warming will increase the area of desert climates by 17% in the next century. The area at risk to desertification is thus large and likely to increase.

Worldwide, desertification is making approximately 12 million hectares useless for cultivation every year. This is equal to 10% of the total area of South Africa or 87% of the area of cultivated lands in our country.

In the early 1980s it was estimated that, worldwide, 61% of the 3257 million hectares of all productive drylands (lands where stock are grazed and crops grown, without irrigation) were moderately to very severely desertified. The problem is clearly enormous.

**DESERTIFICATION IN SOUTHERN AFRICA**  
About half of southern Africa is semi-arid and thus at risk of desertification. The area already transformed into desert-like conditions is not accurately known because uncertainty surrounds the precise definition of a desert, and what the original state of the vegetation was in the semi-arid areas of southern Africa.

The areas which are known to have deteriorated this century are mainly on the edges of the southern Kalahari. The deterioration of the Karoo is less well established. It is possible that desertification of the Karoo began in the last century, when sheep were first introduced, and before good records were available for the area.

In recent years the introduction of artificial water points into the Kalahari within Botswana, together with the widespread erection of veterinary fences, has led to the rapid desertification of huge areas. Similar schemes have had the same effect in the southern Kalahari within South Africa and Bophuthatswana.

**HOW CAN DESERTIFICATION BE HALTED?**  
To halt desertification the number of animals on the land must be reduced, allowing plants to regrow. Soil conditions must be made favourable for plant growth by, for example, mulching. Mulch (a layer of straw, leaves or sawdust covering the soil) reduces evaporation, suppresses weed growth, enriches soil as it rots, and prevents runoff and hence erosion. Reseeding may be necessary in badly degraded areas. Mulching and reseeding are expensive practices.

However, the only realistic large-scale approach is to prevent desertification through good land management in semi-arid areas.